

**ENGINEERING AND RELATED SERVICES
MARCH 29, 2012**

**STATE PROJECT NO. H.009266
F.A.P. NO. H009266
I-10 (LA 73 TO LA 30)
ROUTE I-10
ASCENSION PARISH**

AND

**STATE PROJECT NO. H.009276
F.A.P. NO. H009276
I-10 (LA 30 TO LA 22)
ROUTE I-10
ASCENSION PARISH**

DBE GOAL = 10%

Under Authority granted by Title 48 of Louisiana Revised Statutes, the Louisiana Department of Transportation and Development (DOTD) hereby issues a Request for Qualification Statements (RFQ) on DOTD Form 24-102 (24-102), "Professional Engineering and Related Services", revised November 2011, from Consulting Firms (Consultant) to provide engineering and related services. **All requirements of Louisiana Professional Engineering and Land Surveying (LAPELS) Board must be met at the time of contract execution.**

**** Please note: One Prime Consultant/Sub-Consultant(s) Team will be selected for each of these Contracts (i.e. One Consultant Team will not be selected for both Contracts).**

Project Manager – Mr. Ryan Reviere, P.E.

All inquiries concerning this advertisement should be sent in writing to Alan.Dale@LA.gov.

PROJECT DESCRIPTION

H.009266

The selected Consultant will perform engineering and related services to prepare preliminary and final roadway and bridge plans to widen I-10 from a four (4) lane freeway section to a six (6) lane freeway section. The project will be designed using the F3 (Rural Freeway) design guidelines. The project begins approximately 0.5 mi. east of the LA 73 Interchange and ending 0.5 mi. east of LA 30.

Alternate pavement designs, both rigid and flexible, will be included in the plans for the proposed travel lanes and inside shoulders. The existing travel lanes and outside shoulder will be rehabilitated; either cold planed and overlaid if asphalt, or full depth concrete panel replacement if PCCP.

H.009276

The selected Consultant will perform engineering and related services to prepare preliminary and final roadway and bridge plans to widen I-10 from a four (4) lane freeway section to a six (6) lane freeway section. The project will be designed using the F3 (Rural Freeway) design guidelines. The project begins approximately 0.5 mi. east of the LA 30 Interchange and ending 0.5 mi. east of LA 22.

Alternate pavement designs, both rigid and flexible, will be included in the plans for the proposed travel lanes and inside shoulders. The existing travel lanes and outside shoulder will be rehabilitated; either cold planed and overlaid if asphalt, or full depth concrete panel replacement if PCCP.

SCOPE OF SERVICES

The services to be rendered for these Projects shall consist of the following Stages and Parts:

Stage 3: Design

Part I: Surveying Services

(a) Topographic Survey

Part III: Preliminary Plans

Part IV: Final Plans

- Traffic Management Plan
- Geotechnical Services
- Subsurface Utility Engineering (SUE)

SURVEYING SERVICES

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This project is located in Ascension Parish along I-10 from La 73 to La 30. The topographic survey will begin 0.5 mi. east of the La 73 interchange and will end 0.5 mi. east of the La 30 interchange. The project has overpasses and underpass structures for crossing roadways and a bridge structure for a water crossing.

H.009276

This project is located in Ascension Parish along I-10 from La 30 to La 22. The topographic survey will begin 0.5 mi. east of the La 30 interchange and will end 0.5 mi. east of the La 22 interchange. The project has overpass and underpass structures for crossing roadways and a bridge structure for a water crossing.

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The topographic survey requires a DTM, from existing right of way to existing right of way, (the width of the existing I-10 corridor). The project alignment will be established using the existing alignment. In those areas of on and off ramps, the DTM will extend to the edge of the pavement of the on and off ramp. The overpasses, underpass and bridge site will require a survey to determine the following:

- Project station of centerline bent at every bent and angle of centerline bent to project geometric control if not 90 degrees
- Joint opening (dimension)
- Elevations of the 4 corners of each slab span, approach slabs and intersection of centerline of roadway and joint.
- Verify as-built bent dimensions height, width, depth
- Top of bent elevations at ends
- Channel Cross Section
 - At upstream and downstream face of each existing bridge.
 - Centerline between the two existing bridges.
 - Bent dimensions and locations, (height, width, depth).
 - 100 feet upstream and downstream from crossing.
- Identify official benchmark used for elevations for survey
- Pilings (size and location including overpasses)
- Columns (size and location including overpasses)
- The underpasses will require horizontal and vertical clearances from outside travel lane east bound to outside travel lane west bound of I-10.

The underground utilities will be located and marked by others. The consultant will be responsible for surveying the location of the marked utilities by others.

The horizontal and vertical control for this project will be established by DOTD at the beginning and end of this project. The consultant will use the established control, by DOTD, for this project's control. The consultant will be responsible for any additional control needed for this project. Any additional controls establish will require a control sketch to be submitted for approval by DOTD.

A drainage map will not be required for either of these projects.

ROAD DESIGN SERVICES

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The roadway scope of work will include all engineering services necessary for Stage 3 Design, Part III Preliminary Roadway Plans and Part IV Final Roadway Plans.

Work Elements

- **Stage 3 Design**

Part III: Preliminary Plans: The Consultant shall provide preliminary roadway plans for the project including, but not limited to, the following:

- Title Sheet
- Typical Section and Details
- Summary of Estimated Quantities
- Misc. Details & General Notes
- Reference Points and Bench Mark Elevations
- Temporary Erosion Control
- Temporary Construction Signs, Suggested Seq. of Construction
- Cross-Sections (earthwork)
- Geometric Details
- 1"=50' Plan/Prof sheets
- Construction Cost Estimate

Part IV: Final Plans The consultant shall provide final roadway plans for the project including, but not limited to, the following:

- Title Sheet
- Typical Section and Details
- Summary Sheets
- Summary of Estimated Quantities
- Misc. Details & General Notes
- Reference Points and Bench Mark Elevations
- Temporary Erosion Control
- Temp. Const. Signs, Suggested Seq. of Construction
- Cross-Sections (earthwork)
- Geometric Details
- 1"=50' Plan/Prof sheets
- Joint Layout
- Construction Cost Estimate
- Interstate Signing
- Interstate Pavement Markings

In addition to the roadway design plans, the Consultant shall provide a Traffic Management Plan (TMP), as required by FHWA.

The Consultant's assistance with permit application drawings, if required, will be established by a fully executed Supplemental Agreement or Extra Work Letter.

Electronic files will be in MicroStation and Inroads formats and certified by CADconform.

BRIDGE DESIGN SERVICES

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Interstate I-10 from LA 73 to LA 30 will be widened to the median side from four existing lanes to six lanes. The four bridge sites in this segment are:

- I-10 under LA 74 (One overpass structures on LA 74, Structure No. 2640300601)
- I-10 Over LA 429 and New River (Two overpass/stream crossing structures on I-10, Structure No. 4501106811 and 4501106812)
- I-10 Over Bayou Smith (Two stream crossing structures on I-10, Structure No. 4501108081 and 4501108082)
- I-10 Over LA 30 (Two overpass structures on I-10, Structure No. 450119271 and 450119272)

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Interstate I-10 from LA 30 to LA 22 will be widened to the median side from four existing lanes to six lanes. The four bridge sites in this segment are:

- I-10 Over LA 44 (Two overpass structures on I-10, Structure No. 4501111321 and 4501111322)
- I-10 Over Bayou Conway (Two stream crossing structures on I-10, Structure No. 4501111651 and 4501111652)
- I-10 under LA 941 (One overpass structures on LA 941, Structure No. 8032702381)
- I-10 Over LA 22 (Two overpass structures on I-10, Structure No. 4501114301 and 4501114302)

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The scope of work consists of preparing a comprehensive bridge evaluation report for all overpasses and stream crossings on I-10, and providing recommendations to DOTD as to whether each structure should be widened or replaced. The overpass structures on LA 74 and LA 941 shall be evaluated for the widening of I-10 and all required rehabilitation work must be identified. DOTD will review the evaluation report and recommendations, and make the final decision. Final bridge plans will then be prepared in accordance with the decisions made.

Bridge Design/Evaluation Criteria

The bridge design/evaluation criteria are:

- Provide safe and aesthetically pleasant structures for the traveling public.
- Provide the functionality, durability, corrosion protection, ease of inspection and maintenance.
- The finished cross section on the bridge is planned to include 3-12' travel lanes, 12' inside shoulder, and 12' outside shoulder if the existing bridge is to be replaced or 10' outside shoulder if the existing bridge is to be widened.
- New Structure including any widening shall be designed in accordance with the latest AASHTO LRFD Bridge Design Specifications, LADOTD Bridge Design Manuals and Bridge Design Technical Memoranda.

- Existing structures to remain in service shall be rehabilitated to address all safety and serviceability issues.
- All structures shall have minimum vertical clearance of 16'-6". For the existing structures not meeting this requirement, remediation options must be investigated and presented.
- All columns shall be protected in accordance with AASHTO LRFD Bridge Design Specifications.
- All existing bridge railings shall be replaced with the new F-shape railing and meet TL-4 test level.
- All guardrails shall meet the current bridge standards.
- If the existing bridge is to be widened, the cross slope of the bridge deck shall match the slope on the existing bridge. If the existing bridge is to be replaced by a new structure, 2.5% cross slope shall be provided.
- The existing deck shall be evaluated for its structural condition and its friction rating. If the deck is coming apart, it should be determined if a demolition and latex overlay is appropriate or a complete deck replacement is needed. If friction is the only issue, then a thin bonded epoxy overlay may be the answer. Overlay is required for decks with friction number less than 30 for tread tires or 20 for blank tires. The friction number will be provided by DOTD.
- Lighting system under the existing bridge shall be replaced. The lighting design shall be integrated in the bridge design process. The conduits shall not be exposed to vandalism.
- The hydraulic analysis for the bridges over stream crossing will be done by others.
- No future widening on LA 74 is planned.
- No future widening on LA 941 is planned.

Bridge Design Services Tasks:

The following tasks shall be performed under this contract:

Task 1: Prepare a Quality Control and Quality Assurance (QC/QA) Plan for bridge design activities in this project and submit the QC/QA plan for DOTD's approval. The QC/QA plan shall comply with the minimum requirements in AASHTO/FHWA "Guidance on QC/QA in Bridge Design In Response to NTSB Recommendation," which can be downloaded from the DOTD Bridge Design website. The QC/QA plan shall apply to all bridge design activities during design phase and construction support phase. All project submittals shall include a QC/QA certification signed by the Engineer of Record. The final calculation books (in pdf format) along with final electronic models shall be submitted to DOTD no later than 30 days after submitting the final plans. All revisions made to the calculation books after submitting the final plans shall also be submitted along with plan revisions or change orders. The calculation books must be stamped by the Engineer of Record and must include a QC/QA certification. All major calculation sheets shall be signed by the designer and the checker. All final plan sheets and final reports shall include a QC/QA certification.

Task 2: Review as-built plans including all rehabilitation work have done to the structures, inspection reports, rating reports, accident records, maintenance records, and any other information pertaining to the structures.

Task 3: Conduct an in-depth field investigation of the existing conditions of the structures and have a clear understanding of the structure health and its serviceability. The investigation shall include all bridge elements including, but not limited to, deck, slab, railing, guardrail, girder/diaphragm, approach slab, joint, bearing, abutment, bent, pile, column, column protection, revetment, connection, and all other miscellaneous items at the bridge site that may affect the widening, such as the bridge drainage system, lighting, utilities, etc.

Task 4: Provide LRFR bridge ratings including inventory and operating rating for HL-93 and inventory rating for LADV-11 for the existing bridges on I-10. The bridge rating shall be performed in accordance with the latest edition of the AASHTO Manual for Bridge Evaluation, LADOTD Policies and Guidelines for Bridge Rating and Evaluation, and Bridge Design Technical Memoranda. The bridge rating report shall also be prepared in accordance with the aforementioned publications for each structure.

Task 5: Prepare bridge evaluation report for all structures. The report shall include, but not limited to, the information as follows:

- Assessment of the conditions of each existing bridge structure, including all supporting documents, such as photos, as-built plans, inspection notes, etc.
- Recommendations as to whether each structure should be widened or replaced. If the structure is recommended for replacement, detailed justifications must be provided. Likewise, if the existing structure is recommended for widening, a comprehensive scope of rehabilitation work must be included.
- Identification of all required rehabilitation work for the overpass structures on LA 74 and LA 941 to allow for widening of I-10.
- Summary of the bridge rating results from task 3.

The bridge evaluation report shall be stamped by an Engineer of Record who possesses professional engineering license in Civil Engineering in the state of Louisiana. The report shall be submitted to DOTD for review. DOTD will make the final decision on whether to replace or widen each existing bridge structure.

Task 6: Prepare design criteria and submit it to DOTD for approval prior to proceeding with the design.

Task 7: Prepare final bridge plans for all the structures on I-10 in accordance with the final decisions made by DOTD and the approved design criteria. For the LA 74 and LA 941 overpass structures, prepare final plans for the rehabilitation work necessary, such as maintaining horizontal and vertical clearances, pier protection, guard rail, lighting, etc. that may be required for to accommodate the widening of I-10.

Task 8: Prepare LRFR as-designed bridge rating for all structures on I-10, including new replacement structures, new widening structures, and rehabilitated existing structures, in accordance with the latest edition of the AASHTO Manual for Bridge Evaluation, LADOTD Policies and Guidelines for Bridge Rating and Evaluation, and Bridge Design Technical Memoranda. The bridge rating report shall also be prepared in accordance with the aforementioned publications for each structure.

Task 9: Prepare special provisions and non-standard (NS) pay items.

Task 10: Prepare construction cost estimates throughout plan development.

Task 11: Provide Construction Support (if required via a future Supplemental Agreement).

GEOTECHNICAL SERVICES

Project Description

H.009266

The selected firm will perform geotechnical exploration services for the above captioned project, consisting of nine (9) deep soil borings, forty-four (44) shallow roadway borings, sampling, and laboratory testing along the project alignment in Ascension Parish. The project alignment includes widening of three bridges: I-10 over New River, I-10 over Smith Bayou, and I-10 over LA-30. The following table indicates the number of borings estimated for each bridge.

Bridge	Type of Crossing	Number of Borings
New River	Overpass/Stream	4
Smith Bayou	Stream	2
LA-30	Overpass	3

H.009276

The selected firm will perform geotechnical exploration services for the above captioned project, consisting of eight (8) deep soil borings, forty-nine (49) shallow roadway borings, sampling, and laboratory testing along the project alignment in Ascension Parish. The project alignment includes widening of three bridges: I-10 over LA-44, I-10 over Bayou Conway, and I-10 over LA-22. The following table indicates the number of borings estimated for each bridge.

Bridge	Type of Crossing	Number of Borings
LA-44	Overpass	3
Bayou Conway	Stream	2
LA-22	Overpass	3

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The shallow borings will be made in the median spaced at approximately 500-ft intervals. The soils investigations, sampling and testing services to be provided shall include, but are not limited to:

Geotechnical Exploration and Investigations

The geotechnical investigations, sampling, and testing services to be provided shall include, but are not limited to:

- Field Reconnaissance (including rights of entry, utility locations, access, etc.);
- Mobilization/demobilization;
- Deep and Shallow Soil borings;
- CPT soundings (ASTM D5778);
- Water table elevations with duration of reading;
- GPS Latitude and Longitude of borings to within 10 ft (3 m) accuracy;
- Sealing boreholes in accordance to LA Water Well and DEQ Regulations;
- Standard Penetration Tests and Split-Barrel Sampling of Soils (AASHTO T 206);
- Unconfined Compressive Strength of Cohesive Soils (AASHTO T 208);
- Specific Gravity of Soils (AASHTO T 100);
- Laboratory Determination of Moisture Content of Soils (AASHTO T 265);
- Triaxial Compression Tests, Unconsolidated, Undrained (AASHTO T 296);
- Triaxial Compression Tests, Consolidated Drained 3-point (AASHTO T 297);
- Atterberg Limits (DOTD TR 428);
- Consolidation Tests with Rebound (AASHTO T 216);
- Organic Content (DOTD TR 413);
- Classification of Soils;
- Deep borings (ASTM D 2487 (USCS method));
- Shallow borings (ASTM D 3282(AASHTO method));
- Drafting of boring logs;
- Drafting of subgrade soil surveys; and
- Traffic Control.

Drilling and Sampling

The deep soil borings shall be made by the wet rotary drilling method. In each deep boring, undisturbed samples of cohesive or semi-cohesive material shall be obtained from each distinct soil stratum that is penetrated or 5 ft (1.5 m) interval, whichever is less, using a 3 in. (76 mm) diameter Shelby tube sampling barrel as per AASHTO D 207. When cohesionless soils are encountered at any depth, a split spoon sampler shall be used in conjunction with Standard Penetration Tests (SPT) at 3 foot (1 m) intervals. In the case of massive dense sands being encountered, the Project Manager may be contacted in order to relax the sampling interval, on a case-by-case basis. If requested by DOTD, continuous sampling of a boring will be obtained at 3 foot (1 m) intervals to a pre-determined depth. Boring samples shall be retained for a minimum period of 90 days.

Boring logs which show evidence of SPT's in cohesive soils or tube samples in cohesionless soils will not be accepted.

Shallow soil borings for subgrade soil surveys can be made utilizing either hollow-stem or continuous-flight augers. Any other method shall be approved by the DOTD Pavement & Geotechnical Services Administrator prior to it being implemented.

Transport of samples from the field to the laboratory shall conform to ASTM D4220, Group C. Samples may not be extruded at the worksite. Sample tubes shall be transported vertically in the same orientation as they were sampled, with care taken to avoid excessive temperature variation, vibration, or any other sample disturbance. They shall be extruded in the laboratory in accordance by means of a continuous pressure hydraulic ram. Extrusion by any other method, such as water pressure, is prohibited. Samples shall be extruded directly onto a sample trough, and shall not be caught with the hands.

Laboratory Testing

Soil mechanics laboratory testing shall be performed on at least 75 percent of all samples obtained from the borings. UU Triaxial compression and Atterberg limit testing shall be performed on at least 75 percent of the extruded cohesive samples.

If designated as required for the boring, consolidation tests shall be performed according to AASHTO T 216, and results shall be reported as graphs of "Void Ratio vs. Log of Pressure" and "Coefficient of Consolidation vs. Log of Pressure." Both plots may be shown on the same graph, if adequately labeled. Any sample from a clay layer that shows signs of being overconsolidated must be subjected to a load/rebound/re-load cycle during the consolidation testing, as per AASHTO T 216. Any sample selected for consolidation testing shall also have the specific gravity determined according to AASHTO T 100, and the Atterberg Limits determined according to DOTD TR 428, and with supporting results reported. Laboratory classification of soils from deep borings shall be in accordance with ASTM D 2487. All other sampling and testing shall be performed in accordance with current AASHTO test procedures, unless otherwise noted.

Cone Penetrometer Testing

The CPT rigs shall be capable of providing up to 20 tons reaction. Pore pressure measurements, when requested by the Project Manager, shall be obtained using U2 location, unless otherwise specified. Dissipation tests shall be performed until at least 50 percent of the excess pore water pressure has been dissipated. All CPT probes and equipment utilized shall have been calibrated within the previous year or within a period specified by the project manager. The cost of performing the calibration shall be the consultant's responsibility. The final CPT sounding results shall conform to the input format of LTRC's CPT-Pile software.

Other Considerations

The natural ground in elevation at the location of each borehole shall be determined to within 6 in. (0.15 m). These elevations maybe determined utilizing elevations of existing structures for landmarks that may be shown on the plans supplied. If DOTD has

established a temporary benchmark (TBM) at the site, it shall be used in lieu of elevations shown on the plans.

Unless otherwise stated, it will be the responsibility of the Consultant to obtain consent from the respective landowners in order to enter onto private property. The process for contacting landowners and documentation for Consultant Entry will be discussed at the Consultant Kickoff meeting with DOTD personnel. In the case that consent is not granted, the Consultant shall contact the project manager to execute a Forced Entry, as per Louisiana Revised Statute 48:217. Forced entry access will be granted via written notice from the project manager.

Deliverables

Unless specified by the Project Manager, it will be the responsibility of the Consultant to obtain 3 or 4 mil polyester double matte film for use in reporting the geotechnical exploration results. The DOTD Pavement & Geotechnical Services Section will provide one sheet to the Consultant for use as an example of each format. The lettering used on the profiles shall be of such size and clarity that the legibility of data can be maintained when reduced to fifty (50) percent of its original size. Soil profiles shall be grouped on the plan sheets according to the Construction Project Number(s). In addition to the paper submittal, electronic logs that can be imported into the gINT software for the electronic storage of the soil boring and CPT logs shall be submitted. All project deliverables shall become the property of DOTD upon successful completion of the above captioned project.

All reported test results, including each profile sheet, shall be sealed and manually signed and dated by the Professional Engineer in responsible charge of testing. The DOTD Pavement and Geotechnical Services Section will review the completed boring logs for completeness and accuracy prior to their final submittal.

Geotechnical Engineering Analysis and Design

All geotechnical engineering will be performed in accordance with present design requirements and standard engineering practice. These services are to include but are not limited to:

- Slope stability (embankment & excavation);
- Embankment settlement;
- Bridge foundations;
- Piles;
- Drilled shafts;
- Other foundations;
- Pile-supported approach slab design data;
- Bridge foundation static and dynamic load test program;
- Earth retaining structures; and
- Geotechnical analysis & design recommendations report.

Please refer to **Attachment “A”** located at the end of this document for specific details for the above engineering services.

SUBSURFACE UTILITY ENGINEERING (SUE):

A branch of engineering practice that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design.

The scopes for these projects include Subsurface Utility Engineering (SUE) services for obtaining Utility Quality Level C services throughout the project limits and Utility Quality Level A services at the interchange locations I-10 & LA30 (for H.009266) and I-10 & LA 22 (for H.009276).

The required services also includes Utility Coordination to confirm that the Road and Bridge Design and the Utility Relocation efforts are conducted in accordance to the Department's standards, policies, procedures, and design criteria. The Utility Coordinator shall be responsible for assisting the Engineer of Record in identifying all existing utilities and coordinating any new installations, scheduling utility meetings, keeping and distribution of minutes of all utility meetings, and ensuring expedient follow-up on all unresolved issues, distributing all plans, conflict matrixes, and changes to affected utility owners and making sure this information is properly coordinated. The Utility Coordinator will review all proposed utility work to identify any potential conflicts during design, and will assist and recommend design alternatives to minimize utility impacts. As required, any utility relocation design is also included in this scope.

Utility Quality Level A: Indicates the precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point.

Utility Quality Level C: Indicates information obtained by flagging underground utilities and plotting visible above-ground utility features for the Survey Team to include and reference into the DTM. This is accomplished by using professional judgment in correlating such information with the previously obtained Quality Level D information.

Utility Quality Level D: Indicates utility information derived from existing records and oral recollections.

ELECTRONIC DELIVERABLES

The Consultant hereby agrees to produce electronic deliverables in conformance with the "DOTD Software and Deliverable Standards for Electronic Plans" document. The Consultant is also responsible for ensuring that Sub-Consultants submit their electronic deliverables in conformance with with the same standards. The "DOTD Software and Deliverable Standards for Electronic Plans" document and "DOTD CAD Standards Downloads" are available via links on the following DOTD web site at:

www.dotd.la.gov/highways/project_devel/design/electronic_standards.aspx

Navigate To: www.dotd.la.gov > Doing Business with DOTD> Electronic Standards for Plans

The Consultant shall download and apply the latest CAD Standard “Resources” and approved software versions. The Consultant hereby agrees to install major updates to software versions and CAD Standard Resources in a timely manner. Incremental updates of CAD standards and software versions may be applied per recommendation of the DOTD Design Automation Manager. Such updates will not have a significant impact on the plan development time or delivery date, or require the Consultant to purchase additional software. Prior to proceeding with plan development, the Consultant shall contact the Project Manager for any special instructions regarding project-specific requirements.

In the event that any electronic standard conflicts with written documentation, including DOTD plan-development manuals, the electronic standard typically governs. The Consultant is responsible for contacting the Project Manager should questions arise.

The consultant shall upload (or check in) electronic deliverables directly to the DOTD ProjectWise repository at each plan delivery milestone. Consultants shall be responsible for performing certain operations at each milestone including, but not limited to, the following:

- Upload (or check in) CAD plan deliverables to the discipline “Plans” folder
- Apply indexing attributes to CAD plans (and other deliverables as needed)
- Publish PDF format renditions of plans in ProjectWise using automated publishing tools
- Digitally sign PDF format plans in ProjectWise using automated workflow tools and the consultant’s e-signature software

Additionally, after submitting deliverables for each submittal milestone, the Project Manager will notify the consultant regarding the availability of two automatically-generated informational reports in ProjectWise. These reports document the completion status and other information regarding indexing attributes and CAD standards. Consultants shall take these reports into account before the next submittal milestone.

QUALITY CONTROL/QUALITY ASSURANCE

The DOTD requires the Consultant to develop a Quality Control/Quality Assurance program or adopt DOTD's program; in order to provide a mechanism by which all construction plans can be subject to a systematic and consistent review. Consultant's must ensure quality and adhere to established design policies, procedures, standards and guidelines in the preparation and review of all design products. The DOTD shall provide limited input and technical assistance to the Consultant. The Consultant's plans shall meet or exceed DOTD's Construction Plans Quality Control / Quality Assurance Manual and EDSM No. Volume I. 1.1.24 on Plan Quality. The Consultant shall transmit plans with a DOTD Quality Control/Quality Assurance Checklist, Documentation Manual for Project Delivery, and a certification that the plans meet the DOTD's quality standards.

SERVICES TO BE PERFORMED AND ITEMS TO BE PROVIDED BY DOTD

In addition to any services previously indicated to be performed by the DOTD, the following services and data shall also be provided, if available.

- a. Pavement Design
- b. Traffic Data
- c. Hydraulic Analysis
- d. Scour Analysis
- e. Access to Standard Plans (if applicable)
- f. Access to As-built plans (if available) – the consultant will be responsible for obtaining the As-built plans

ADDITIONAL SERVICES

The scope of services, compensation and contract time for future engineering services will be established by Supplemental Agreement(s) for the following:

- Stage 5: Construction Engineering Service
 - Part I: Construction Support
 - Part II: Shop Drawings

All additional sub-consultants required to perform these services are subject to approval as per RS 48:290.D prior to execution of the supplemental agreement.

CONTRACT TIME

H.009266

The Consultant shall proceed with the services specified herein after the execution of this Contract and upon written Notice-To-Proceed from the DOTD. The contract time herein described shall not exceed **710 calendar days**. The delivery schedule for all project deliverables shall be negotiated and approved by the Project Manager. Upon satisfactory completion of Preliminary Plans a notice to proceed (NTP) will be issued for Final Plans. A separate NTP will be issued for Construction Support (if required).

H.009276

The Consultant shall proceed with the services specified herein after the execution of this Contract and upon written Notice-To-Proceed from the DOTD. The contract time herein described shall not exceed **770 calendar days**. The delivery schedule for all project deliverables shall be negotiated and approved by the Project Manager. Upon satisfactory completion of Preliminary Plans a notice to proceed (NTP) will be issued for Final Plans. A separate NTP will be issued for Construction Support (if required).

COMPENSATION

H.009266

Compensation to the Consultant for services rendered in connection with this Contract will be a non-negotiated lump sum in the amount of **\$1,471,000**. In addition, a negotiated lump sum will be utilized for the SUE Services portion of this contract.

H.009276

Compensation to the Consultant for services rendered in connection with this Contract will be a non-negotiated lump sum in the amount of **\$1,505,000**. In addition, a negotiated lump sum will be utilized for the SUE Services portion of this contract.

REFERENCES

All services and documents will meet the standard requirements as to format and content of the DOTD; and will be prepared in accordance with the latest applicable editions, supplements and revisions of the following:

1. AASHTO Standards, ASTM Standards or DOTD Test Procedures
2. DOTD Location and Survey Manual
3. DOTD Roadway Design Procedures and Details
4. DOTD Hydraulics Manual
5. DOTD Standard Specifications for Roads and Bridges
6. Manual on Uniform Traffic Control Devices
7. DOTD Traffic Signal Design Manual
8. National Environmental Policy Act (NEPA)
9. National Electric Safety Code
10. National Electric Code (NFPA 70)
11. DOTD Environmental Impact Procedures (Vols. I-III)
12. Policy on Geometric Design of Highways and Streets
13. Construction Contract Administration Manual
14. Materials Sampling Manual
15. DOTD Bridge Design Manual
16. Consultant Contract Services Manual
17. Geotechnical Engineering Services Document
18. Bridge Inspectors Reference Manual
19. DOTD Strategic Highway Safety Plan

MINIMUM PERSONNEL REQUIREMENTS

The following requirements must be met by the Prime-Consultant at the time of submittal:

1. At least one Principal of the Prime-Consultant shall be a Professional Engineer registered in the State of Louisiana.

2. At least one Principal or a responsible member of the Prime-Consultant must be registered in the State of Louisiana as a Professional Civil Engineer with at least five (5) years experience in transportation design management.
3. The Prime-Consultant must also employ on a full time basis or through the use of a Sub-consultant, a minimum of two Professional Civil Engineers registered in the State of Louisiana, one with at least five (5) years experience in roadway design, and one with at least five (5) years experience in bridge design, and a corresponding support staff.
4. In addition to the above requirements, the Prime Consultant must also employ on a full-time basis or through the use of a Sub-Consultant, a minimum of one Registered Professional Civil Engineer in the State of Louisiana with five (5) years of Geotechnical experience.
5. In addition to the above requirements, the Prime Consultant must also employ on a full time basis or through the use of a Sub-Consultant, a minimum of one Professional Land Surveyor registered in the State of Louisiana, with at least five (5) years in conducting topographic and property surveys, and preparing right-of-way maps for DOTD, and a corresponding support staff. The knowledge of 3D scan survey technology is preferred.
6. The Prime Consultant must employ on a full time basis or through use of a Sub-Consultant, a minimum of one Professional Civil Engineer registered in the State of Louisiana, with at least 5 years experience managing Subsurface Utility Engineering (SUE) services in support of roadway design on transportation projects and corresponding support staff.

Certifications of Compliance must be submitted with and made part of the Consultants DOTD Form 24-102 for all Personnel Requirements listed herein.

EVALUATION CRITERIA

The general criteria to be used by DOTD (when applicable) in evaluating responses for the selection of a Consultant to perform these services are:

1. Consultant's firm experience on similar projects, weighting factor of 3;
2. Consultant's personnel experience on similar projects, weighting factor of 4;
3. Consultant's firm size as related to the estimated project cost, weighting factor of 3;
4. Consultant's past performance on similar DOTD projects, weighting factor of 6; **
5. Consultant's current work load with DOTD, weighting factor of 5;
6. Location where the work will be performed, weighting factor of 4;

** A combination of a Hybrid Roadway Design (RX) (80%) and Bridge Design Moderate (BB) (20%) performance ratings will be used for this evaluation criterion.

Complexity Level: Moderate

Consultants will be evaluated as indicated in Items 1- 6. The evaluation will be by means of a point-based rating system. Each of the above criteria will receive a rating on a scale

of 0-4. The rating will then be multiplied by the corresponding weighting factor. The firm's rating in each category will then be added to arrive at the Consultant's final rating.

If Sub-Consultants are used the Prime Consultant must perform a minimum of 51% of the work for the overall project. Each member of the Consultant/Team will be evaluated on their part of the contract, proportional to the amount of their work. The individual team member ratings will then be added to arrive at the Consultant/Team rating.

Communication Protocol

DOTD's Project Evaluation Team will be responsible for performing the above described evaluation, and will present a short-list of the three (if three are qualified) highest rated Consultants to the Secretary of the DOTD. The Secretary will make the final selection. **Below are the proposed Team members. DOTD may substitute for any reason provided the members meet the requirements of R.S. 48:291.**

H.009266 & H.009276

1. Alan Dale – Ex officio
2. Ryan Reviere – Project Manager
3. Jenny Fu
4. Brent Waguespack
5. Chris Nickel
6. Hong Zhang

Rules of Contact (Title 48 Engineering and Related Services)

These rules are designed to promote a fair, unbiased, legally defensible selection process. The LA DOTD is the single source of information regarding the Contract selection. The following rules of contact will apply during the Contract selection process and will commence on the date of advertisement and cease at the contract execution of the selected firm. Contact includes face-to-face, telephone, facsimile, Electronic-mail (E-mail), or formal written communications. Any contact determined to be improper, at the sole discretion of the LA DOTD, may result in the rejection of the submittal (24-102):

- A. The Consultant shall correspond with the LA DOTD regarding this advertisement only through the LA DOTD Consultant Contracts Services Administrator;
- B. The Consultant, nor any other party on behalf of the Consultant, shall not contact any LA DOTD employees, including but not limited to, department heads; members of the evaluation teams; and any official who may participate in the decision to award the contract resulting from this advertisement except through the process identified above. Contact between Consultant organizations and LA DOTD employees is allowed during LA DOTD sponsored one-on-one meetings;

- C. Any communication determined to be improper, at the sole discretion of the LA DOTD, may result in the rejection of submittal, at the sole discretion of the LA DOTD;
- D. Any official information regarding the project will be disseminated from the LA DOTD'S designated representative on the LA DOTD website. Any official correspondence will be in writing;
- E. The LA DOTD will not be responsible for any verbal exchange or any other information or exchange that occurs outside the official process specified herein.

By submission of a response to this RFQ, the Consultant agrees to the communication protocol herein.

CONTRACT REQUIREMENTS

The selected Consultant will be required to execute the contract within 10 days after receipt of the contract.

INSURANCE - During the term of this contract, the Consultant will carry professional liability insurance in the amount of \$1,000,000. The Prime-Consultant may require the Sub-Consultant(s) to carry professional liability insurance. This insurance will be written on a "claims-made" basis. Prior to executing the contract, the Consultant will provide a Certificate of Insurance to DOTD showing evidence of such professional liability insurance.

AUDIT - The selected Consultant/Team will allow the DOTD Audit Section to perform an annual overhead audit of their books, or provide an *independent* Certified Public Accountant (CPA) audited overhead rate. This rate must be developed using Federal Acquisition Regulations (FAR) and guidelines provided by the DOTD Audit Section. In addition, the Consultant/Team will submit semi-annual labor rate information, when requested by DOTD.

The selected Consultant/Team will maintain an approved Project Cost System, and segregate direct from indirect cost in their General Ledger. Pre-award and post audits, as well as interim audits, may be required. For audit purposes, the selected Consultant/Team will maintain accounting records for a minimum of five years after final contract payment.

Any Consultant currently under contract with the DOTD and who has not met all the audit requirements documented in the manual and/or notices posted on the DOTD Consultant Contract Services Website (www.dotd.louisiana.gov), will not be considered for this project.

SUBMITTAL REQUIREMENTS

Only **one (1)** original (**stamped "original"**) and **five** copies of the 24-102 must be submitted to DOTD for this Advertisement for Professional Engineering and Related Services for the two (2) separate projects (H.009266 and H.009276). All submittals must

be in accordance with the requirements of this advertisement and the Consultant Contract Services Manual. Any Consultant/Team failing to submit any of the information required on the 24-102, or providing inaccurate information on the 24-102, will be considered non-responsive.

Any Sub-Consultants to be used, including Disadvantaged Business Enterprises (DBE), in performance of this Contract, must also submit a 24-102, which is completely filled out and contains all information pertinent to the work to be performed.

The Sub-Consultant's 24-102 must be firmly bound to the Consultant's 24-102. In Section 8, the Consultant's 24-102 must describe the **work elements** to be performed by the Sub-Consultant(s), and state the approximate **percentage** of each work element to be subcontracted to each Sub-Consultant (if different for each of these projects then the work elements and percentages for both H.009266 and H.009276 must be separated and clearly identified).

Name(s) of the Consultant/Team listed on the 24-102, must precisely match the name(s) filed with the Louisiana Secretary of State, Corporation Division, and the Louisiana State Board of Registration for Professional Engineers and Land Surveyors.

The 24-102 will be identified with **State Project No. H.009266 and State Project No. H.009276**, and will be submitted **prior to 3:00 p.m. CST on Monday, April 16, 2012**, by hand delivery or mail, addressed to:

Department of Transportation and Development
Attn.: Mr. Alan Dale, P.E.
Consultant Contracts Administrator
1201 Capitol Access Road, **Room 405-T**
Baton Rouge, LA 70802-4438 or
Telephone: (225) 379-1401

REVISIONS TO THE RFQ

DOTD reserves the right to revise any part of the RFQ by issuing an addendum to the RFQ at any time. Issuance of this RFQ in no way constitutes a commitment by DOTD to award a contract. DOTD reserves the right to accept or reject, in whole or part, all Qualification Statements submitted, and/or cancel this announcement if it is determined to be in DOTD's best interest. All materials submitted in response to this announcement become the property of DOTD, and selection or rejection of a submittal does not affect this right. DOTD also reserves the right, at its sole discretion, to waive administrative informalities contained in the RFQ.

ATTACHMENT “A” Geotechnical Services Document

SLOPE STABILITY (Embankment & Excavation)

The Objective of a Slope Stability Analysis is to determine the factor of safety of the proposed embankment or excavation on the project subsurface soils and make appropriate Engineering Design Recommendations. The resistance factors from the AASHTO LRFD Bridge Design Specifications, latest edition, shall be used to analyze slope stability.

Standard Procedure

The embankment/excavation slope stability analysis shall consist of (1) modeling the appropriate boring logs to define the critical embankment/excavation geometry (cross-section) with subsurface soils, (2) interpreting the shear strength test data to determine drained and/or un-drained shear strength design parameters, (3) performing the stability analysis utilizing the Bishop, Spencer, and/or sliding block method deemed appropriate by the engineer, (4) determining the maximum resistance factors for both long- and short-term conditions at the critical fill heights at each bridge end, along the approach embankment (intermediate fill height) and in critical cut sections. Maximum resistance factor should also be taken into consideration for rapid drawdown conditions when applicable, (5) analyzing different methods for mitigating possible stability problems and if necessary, make recommendations for geotechnical instrumentation to monitor stability performance, (6) defining areas of highly erodible materials and analyzing erosion control measures, and (7) preparing a report with all the above information and engineering recommendations.

Deliverables of Slope Stability Analysis shall include the following:

- Printout of critical stability circle and/or block for each design case;
- Geotechnical models (cross-sections) and design input parameters;
- Summary table with critical fill heights and resistance factors, or critical excavation cross-sections with resistance factors;
- Certification that the modeled embankments meet the required long and short-term resistance factors required;
- Summary of alternatives for mitigating possible stability problems with resistance factors and estimated costs;
- Specifications for slope stability mitigation measures;
- Geotechnical Instrumentation Plan (if recommended);
- Recommended erosion control measures; and
- Construction Slope Stability notes for the Bridge General Notes Sheet.

EMBANKMENT SETTLEMENT

The Objective of a Consolidation/Settlement Analysis is to determine the amount of settlement in inches/feet, and the time required for this settlement to take place in days/months/years when the proposed embankment is constructed on the project subsurface soils, and make appropriate Engineering Design Recommendations.

Standard Procedure

The embankment settlement analysis shall consist of (1) modeling the appropriate boring logs to define the critical embankment geometry (cross-section) with subsurface soils, (2) interpreting the consolidation test data to determine design consolidation soil parameters, (3) performing a settlement analysis for the critical bridge end fill heights and for intermediate fill heights as needed, (4) determining the predicted total consolidation settlement, the predicted 90% consolidation settlement and the time periods for the predicted settlement to occur, (5) if the predicted time for 90% of the settlement to occur is excessive (greater than 5 months) recommendations shall be made to reduce the amount of consolidation settlement and/or to accelerate the settlement through the use of lightweight fills, surcharge placement, wick drains or other methods determined by the Engineer, (6) if mitigation is required, the consultant shall include all analyses and information including special provisions relating to surcharge quantities and limits, wick drain information and layouts and settlement monitoring instrumentation details, (7) assess the impact of predicted settlement and recommended mitigation on pavement, culverts, retaining walls and bridge abutments, and (8) preparing a report with all the above information and engineering recommendations.

Deliverables of Consolidation/Settlement Analysis shall include the following:

- Geotechnical models (cross-sections) with design input parameters;
- Printout of settlement analysis for each design case;
- Presentation of settlement analysis in graphical form (Settlement vs. Time of consolidation Curves) with clear indications of total predicted settlement, 90% predicted settlement, and the effect of surcharging and/or placing wick drains. Hand calculations should be included;
- Assessment of the potential impact of predicted settlement and any recommended mitigation on pavement, culverts, retaining walls and bridge abutments;
- Wick Drain Design Sheets;
- Specifications for recommended settlement mitigation measures (surcharge, wick drains, etc.); and
- Construction Settlement notes for the Bridge General Notes Sheet.

BRIDGE FOUNDATIONS:

PILES

The Objective of a Pile Design Analysis is to determine the pile type, pile capacity, lateral load requirements, and pile length for the project subsurface soils considering pile

set-up, down-drag (negative skin friction), potential scour, and other project related factors.

Standard Procedure

The Pile Foundation Design Scope of work shall consist of (1) modeling the appropriate deep boring logs and/or Cone Penetration (CPT) sounding data to define the project subsurface soil profile, (2) obtaining Standard Penetration Test (SPT) N-values and interpreting the laboratory test data to determine pile design soil parameters, (3) performing pile static analyses to determine pile type, pile capacity and plan pile tip elevation or length, (4) estimating foundation settlement and “down-drag” loads, (5) performing lateral load analyses, (6) estimating scour depths, (7) performing wave equation analyses to determine pile drivability and hammer approval, (8) assessing constructability issues such as installation sequencing, heave and/or lateral pile movement, installation aids (jetting or augering), etc., (9) performing analyses to develop test pile recommendations (feasibility, location, test pile tip elevation, etc.), and pile driving analyzer (PDA) recommendations.

(The consultant shall utilize approved pile capacity prediction methods or software. The “PILECPT” software provided by the LTRC Web site shall be utilized with the CPT sounding data.)

Deliverables for Pile Foundation Design Analysis shall include the following:

- Design spreadsheets or calculations indicating the geotechnical design parameters utilized for each boring log, including scour elevations if applicable, for the pile type selected;
- Graphical or tabulated representation of the pile capacity vs. tip elevation (not depth of penetration);
- If the FHWA software Driven 1.2 is used, include an electronic copy of the data file generated along with a hard copy of the input and output;
- Lateral load analyses;
- Recommended plan pile tip elevations for all bents. (Shown in the pile data sheet.);
- Feasibility study for utilizing a test pile (static resistance factors vs. dynamic resistance factors);
- Drivability recommendations;
- Pile installation criteria with discussion of installation issues;
- Pile Driving Analyzer (PDA) recommendations;
- Hammer approval method recommendations;
- Necessary pay items and corresponding quantities for test piles, indicator piles, and monitor piles;

- Special Provisions for Dynamic Monitoring and Dynamic Analysis, if recommended for project;
- Special Provision for Static Load Test, if recommended for project;
- Considerations for “down-drag” effects on piles;
- Considerations for pile “set-up;”
- Uplift Capacity of Group Piles if required by project conditions; and
- Pile notes for the Bridge General Notes Sheet.

DRILLED SHAFTS

The Objective of a Drilled Shaft Analysis Design is to determine the diameter, tip elevation and installation procedure for the project subsurface soil conditions.

Standard Procedure

The Drilled Shaft Foundation Design Scope of work shall consist of (1) modeling the appropriate deep boring logs and/or Cone Penetration (CPT) sounding data to define the project subsurface soil profile, (2) obtaining Standard Penetration Test (SPT) N-values and interpreting the laboratory test data to determine drilled shaft design soil parameters, (3) selecting appropriate design equations for the project soil types to determine ultimate base and side resistance and selecting appropriate resistance factor, (4) performing axial and lateral load analyses to determine drilled shaft diameter and tip elevation, and (5) performing analyses to determine appropriate Construction Method for project soil conditions.

Deliverables for Drilled Shaft Foundation Analysis and Design shall include the following:

- Design spreadsheets or calculations indicating the geotechnical design parameters utilized for each boring log including scour elevations if applicable;
- Graphical or tabulated representation of the drilled shaft capacity vs. tip elevation for each diameter;
- Lateral load analyses;
- Considerations for “down-drag;”
- Recommended plan drilled shaft diameters and tip elevations for all bents. (Shown in the Drilled Shaft data sheet);
- Recommended Construction Method with discussion of installation issues;
- Drilled Shaft notes for the Bridge General Notes Sheet;
- Special Provision for Integrity Testing if required for project; and
- Special Provision for drilled shaft Load Test if required for project.

OTHER FOUNDATIONS

If other types of foundation are recommended for the specific project conditions, the Standard Procedure format and the Deliverables format outlined for piles and drilled shafts shall be followed with specific design details for the type of Foundation recommended.

PILE SUPPORTED APPROACH SLAB DESIGN DATA

The DOTD normally uses a timber pile supported approach slab to minimize differential settlement in the transition zone between the approach embankment and the bridge abutment.

Deliverables for Pile Supported Approach Slabs shall include the following:

- Layout showing pile locations;
- Pile diameter and length; and
- Drivability Recommendations.

BRIDGE FOUNDATION LOAD TEST PROGRAM

If the project subsurface conditions are difficult, significant uncertainties exist in the Foundation Design, and if cost savings can be predicted, a Foundation Load Test Program may be appropriate. Depending on project conditions, a Foundation Load Test Program may be included either in the Design or in the Construction phase.

Deliverables for the Foundation Load Test Program shall include the following:

- Location and Type of Load Test Proposed;
- Design of Test Foundation (pile, drilled shaft, or other);
- Dynamic Test Procedures and Schedules;
- Load Increment Requirements;
- Maximum Test Load;
- Instrumentation Requirements;
- Load Test Layout and Design Sheets for Plans;
- Special Provision for Construction of Test Foundation and Conduct of Load Test;
- Interpretation of Load Test Results and Recommendations; and
- Foundation Load Test Report.

EARTH RETAINING STRUCTURES

A Retaining Wall is normally required if adequate space (r-o-w) is not available for a Slope. The DOTD has used Mechanically Stabilized Earth (MSE) Walls, Gravity Concrete Walls, Sheet Pile Walls, plus other types for transportation projects. The selection of the most appropriate Retaining Wall type for the specific project

requirements and site and subsurface conditions can have profound effects on the project cost and constructability.

General Considerations

Every Retaining Wall type has a unique design procedure and generally requires the services and coordination of a Geotechnical Engineer and a Structural Engineer. The following criteria are generally required for analysis and design of all Retaining Wall types:

Deliverables for all Retaining Wall Analyses and Designs shall as a minimum include the following:

- Earth Pressure Distributions;
- Bearing Capacity of the foundation soil or rock;
- Analyses for Sliding and Overturning and Mitigation Recommendations;
- Settlement and Tilt (Rotation) Analyses and Mitigation Recommendations;
- Drainage Recommendations;
- Global Stability Analyses and Mitigation Recommendations;
- Backfill Properties;
- Wall Components/Materials;
- Wall Construction Procedures;
- Wall Layout with plan view, elevation view, typical sections, and details;
- Quantities Table with applicable General Notes;
- Design Life; and
- Special Provisions.

MECHANICALLY STABILIZED EARTH (MSE) WALLS

The AASHTO LRFD Bridge Specifications, latest edition as well as all supplements shall be followed for analysis and design of all MSE Walls. FHWA NHI-10-024 Vol. I and NHI-10-025 Vol. II, “Design of MSE Walls and Reinforced Slopes” (Berg et al., 2009) may be used as a reference.

Additional Deliverables for MSE Walls shall be required to identify the MSE specific design and construction requirements:

- Type and Size of Facing Element;
- Type, Size and Design Length of Reinforcement Elements;
- Type of Connections;
- Minimum embedment requirements;

- Backfill Material Requirements; and
- If TEMPORARY WALL, identify specific requirements.

CONCRETE WALLS

Cast-In-Place Concrete Gravity or Cantilever Walls are now generally limited to small applications or specialized situations because of the development of more economical wall types. Standard design and construction procedures are well documented in many geotechnical books and other publications.

Deliverables for Concrete Walls are as outlined under General Considerations above.

SHEET PILE WALLS

The resistance factors from the AASHTO LRFD Bridge Design Specifications, latest edition, shall be used to design sheet pile walls.

Additional Deliverables for Sheet Pile Walls shall be as outlined in the DOTD Guidelines:

- Sheet Pile Section and Type;
- Minimum Section Modulus;
- Minimum Depth of Penetration;
- Moment of Inertia Requirements;
- Estimated long and short term Deflections;
- Anchor Loads;
- Long and short term Stability including Drawdown and Liquefaction;
- Complete Design Details of sheet piling, Backfill, Drainage, and Connections;
- Corrosion Protection Measures; and
- Construction Constraints.

OTHER RETAINING WALL TYPES

Other types of Retaining Walls that may be appropriate for DOTD transportation projects are Drilled Shaft Walls, Soldier Pile & Lagging Walls, Slurry Walls, Anchored (Tied-back) Walls, Soil Nailed Walls, Reticulated Micro-Pile Walls, Jet-Grouted Walls, and Deep Soil Mixing Walls. These walls shall be designed using generally recognized design procedures applicable to the specific type of wall used.

GEOTECHNICAL ANALYSIS & DESIGN RECOMMENDATIONS REPORT

No standard report format is required and the Consulting Firm may use its own format. However, the GEOTECHNICAL ANALYSIS & DESIGN RECOMMENDATIONS REPORT shall contain a Background Description of THE PROJECT such as location, geological irregularity, if exists, engineering features and requirements, etc., and shall include all the items listed under Deliverables above that are a part of THE PROJECT.

LIST OF PUBLISHED GEOTECHNICAL DOTD REPORTS AND FORMS PLUS OTHER TECHNICAL REFERENCES

Most of the following can be obtained at the DOTD web site (www.dotd.state.la.us) or at the FHWA Bridge/Geotechnical web site (www.fhwa.dot.gov/bridge).

DOTD Reports and Forms:

- AASHTO LRFD Bridge Design Specifications, latest edition and supplements;
- Standard Specification, latest edition;
- Bridge Manual;
- Road Design Manual;
- Hydraulics Manual;
- Materials Sampling Manual;
- Materials Testing Procedures Manual;
- Drilled Shaft Foundation Construction Inspection Manual (1/08/02);
- LTRC “PILECAP” Software;
- FHWA “DRIVEN” Software;
- Pile and Driving Equipment Data Form (06/19/06);
- Deep Soil Boring Request and Field & Laboratory Request Form (1/03/02) (in one sheet);
- Wick Drain Design Sheets; and
- DOTD Testing Procedures Guidelines For Standard Format.

Other Technical References:

The DOTD has used the following as technical references and guidelines in the design and construction monitoring of Geotechnical features for DOTD projects in the past and are recommended for use by the Geotechnical Engineering Consultant community. This list is not all-encompassing and other publications may be used and referenced. Additions will be made as this Document is updated.

- Subsurface Investigations Manual, Publication No. FHWA HI-97-021, Nov. 1997;
- Manual On Subsurface Investigations, Published by AASHTO, 1988;
- AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, PART I – SPECIFICATIONS and PART II – TESTS, current edition;
- ASTM Procedures and Regulations, current edition;
- Earth Retaining Structures, Participants Manual, FHWA-NHI-99-025, 1999;

- Earth Retaining Systems, Geotechnical Engineering Circular No. 2, Publication No. FHWA-SA-96-038, February 1996;
- Design of MSE Walls and Reinforced Slopes, FHWA NHI-10-024 Vol. I and NHI-10-025 Vol. II, 2009;
- Geotechnical Instrumentation Manual, Publication No. FHWA HI-98-034, October 1998;
- Drilled Shafts: Construction Procedures and LRFD Design Methods, Publication No. FHWA-NHI-10-016, May 2010;
- Soils and Foundations Workshop Manual, Publication No. FHWA NHI-00-045, August 2000;
- Geosynthetic Design and Construction Guidelines Manual, Publication No. FHWA HI-95-038, April 1998;
- Ground Improvement Technical Summaries, DP 116, Publication No. FHWA-SA-98-086;
- Design and Construction of Driven Pile Foundations Reference Manual, Volumes 1 & 2, Publications No. FHWA-NHI-05-042 and FHWA-NHI-05-043, 2006;
- Soil Nail Walls, Geotechnical Engineering Circular No. 7, Publication No. FHWA-IF-03-017, March 2003;
- Soil Nailing Field Inspectors Manual, (DP 103), Publication No. FHWA-SA-93-068, April 1994.